

BRVSTON

SP2
PREAMP/PROCESSOR
OWNER'S MANUAL

IMPORTANT SAFETY INSTRUCTIONS



The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, ARE PLACED ON THE EQUIPMENT.

TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE.

THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE.

BRYSTON LIMITED WARRANTY

Bryston analog audio circuits are warranted to be free from manufacturing defects for twenty (20) years from the original date of manufacture. The warranty includes parts and labour.

Bryston Digital circuits and cables are warranted for five years from the original date of manufacture. The warranty includes parts and labour. Bryston products having motorized moving parts, excluding motorized volume controls, are warranted for three years from the original date of manufacture. The warranty includes parts and labour.

Bryston will remedy the problem by repair or replacement, as we deem necessary, to restore the product to full performance. Bryston will pay return shipping during the first three years of warranty coverage.

The warranty is fully transferable to the original owner and all subsequent owners during the warranty period. Warranty coverage is automatic and commences with the original date of manufacture which is kept on file at Bryston. In the event of a defect or malfunction, contact Bryston's repair centers for return authorization. Products must be returned using original packaging material only. Packing material may be purchased from Bryston if necessary. This warranty is considered void if the defect, malfunction or failure of the product or any component part was caused by damage (not resulting from a defect or malfunction) or abuse while in the possession of the customer. Tampering by persons other than factory authorized service personnel or failure to fully comply with Bryston operating instructions voids the warranty. This warranty gives you specific legal rights and you may also have other rights which may vary from province to province and country to country.

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INTRODUCTION

Congratulations on your purchase of the Bryston SP2 pre-amplifier/processor. This product will provide you with the finest available signal control and DSP audio processing available. Like all Bryston products the SP2 has been carefully designed and engineered to deliver a lifetime of enjoyment.

The SP2 offers both pre-amplifier and digital decoding functions, and it is very important that you thoroughly read this manual BEFORE you install and use the SP2.

UNPACKING

Your SP2 was carefully packed at the factory to protect against any damage in shipping and handling. Carefully examine the packing and the unit for any signs of external damage or impact and report those to your dealer or Bryston prior to using the unit.

Bryston advises that you keep all packaging in the event that the unit may have to be returned for service.

ACCESSORIES

In the carton you should have found the following accessories in addition to the SP2:

- 1 Bryston SP2 Instruction Manual
- 1 IEC standard power cord
- 1 SP2 Infrared Remote Control unit with backlight and battery installed

SAFETY

It is VERY IMPORTANT that you read and completely understand the safety instructions and warning on page one of this manual before installing or connecting the SP2 to any electrical power source.

NEW FEATURES

- New "C" series cosmetics
- RS-232 software updates
- DSP firmware updates via SPDIF
- New Texas Instruments Aureus Audio DSP chip
- Seven times greater processing power
- DTS 96/24 5.1 surround decoding
- Dolby 96/24 two channel surround PLIIx decoding
- Four independent hi-pass subwoofer crossover points:
 - ◊ Front Left/Right
 - ◊ Centre
 - ◊ Left/Right surrounds
 - ◊ Back Left/Right
- 7.1 decoding from 2 channel source in Dolby PLIIx Music and Film modes

- 7.1 decoding from 2 channel source in DTS Neo-6 Music & Cinema modes
- 7.1 surround effects decoding from 2 channel digital sources
- 7.1 Surround effects decoding from 2 channel analog sources
- 96/24 Stereo decoding
- 96/24 DTS 5.1 decoding
- 96/24 Matrix surround modes in 5.1
- 9Dynamic range adjustment per individual input
- New, faster micro-controller
- New THX modes: Cinema, Advanced Music, Advanced Games
- new THX ULTRA sub-woofer setting

POWER INLET & SWITCH



Located on the right hand side of the rear panel, adjacent to the IEC power cord socket is a large computer-style switch that controls the main electrical power to the unit. This is the ONLY switch that actually completely turns off all power to the unit. When the SP2 is connected to an appropriate AC

power source, and the power switch is switched to the 'I' position, the unit automatically sets itself into a STANDBY power mode, where-in only the minimum necessary circuitry to respond to the remote control's power-on command or the momentary push-button power switch on the front panel are active. The RED standby LED on the front panel illuminates.

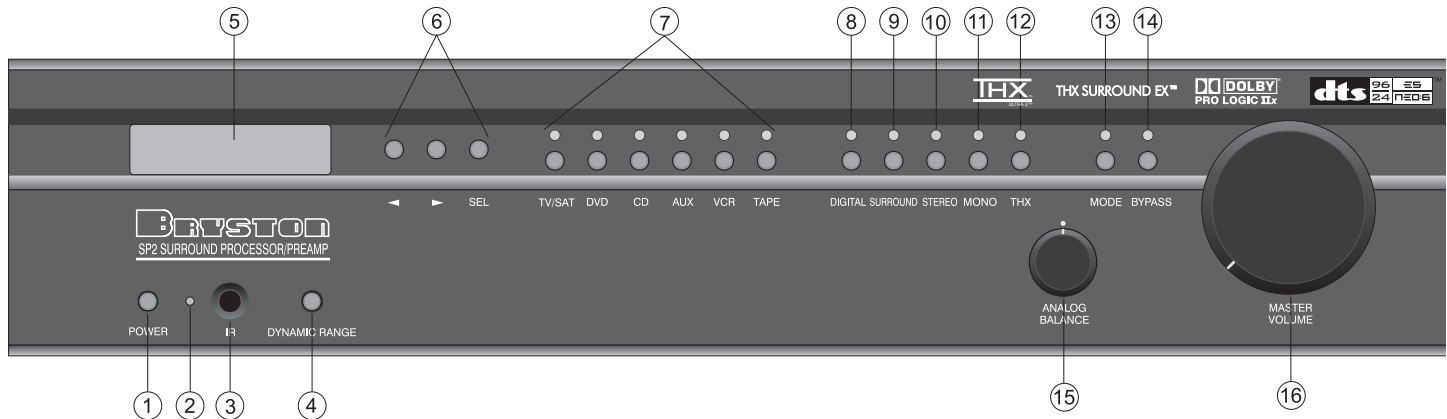
Pressing the momentary POWER bush-button switch on the front panel or the POWER button on the remote immediately takes the unit out of its STANDBY mode into its normal operating mode. This is indicated by the illumination of the front panel LCD display, the illumination of the LED corresponding to the source you last selected, and the units LED operating mode indicators.

NOTE:

If your unit's LCD backlight does not illuminate when the SP2 is plugged into an operating outlet, and switched out of STANDBY mode, please check to see that the rear panel main power switch {mains switch} is in the ON position.

If the SP2 is to be unused for an extended period of time (i.e. a vacation) it is strongly recommended that it be turned off using the main power switch on the back panel.

SP2 FRONT PANEL CONTROLS & INDICATORS



- 1: POWER SWITCH (momentary)
- 2: STANDBY & INFRA-RED ACTIVITY INDICATOR
- 3: INFRA-RED RECIEVER (sensor)
- 4: DYNAMIC RANGE CONTROL
- 5: ALPHA-NUMERIC DISPLAY
- 6: MENU CONTROL Buttons
- 7: SOURCE SELECT Buttons & Indicators
- 8: DIGITAL MODE Switch & Indicator
- 9: SURROUND MODE Switch & Indicator
- 10: STEREO & STEREO DOWNMIX MODE Switch & Indicator

- 11: MONO & MONO DOWNMIX MODE Switch & Indicator
- 12: THX Button & Indicator
- 13: MODE Button & Indicator
- 14: BYPASS Button & Indicator
- 15: ANALOG BALANCE Control
- 16: MASTER VOLUME Control

See detailed descriptions of these switches, controls and indicators on pages 3 through 7)

FRONT PANEL CONTROLS & INDICATORS

1: POWER BUTTON

Pressing this push button switch takes the unit in and out of its Standby power mode. See also "POWER INLET & SWITCH" elsewhere on this page.

2: STANDBY & INFRA-RED ACTIVITY INDICATOR

If this LED is continuously red, it is an indication that the SP2 is in Standby mode. When the SP2 is powered up, the LED is OFF, and flashes (Red) when a valid IR code is detected.

3: INFRA-RED SENSOR

Receives infra-red remote control signals

4: DYNAMIC RANGE CONTROL



This push button switch permits the selection of three dynamic range (or compression) levels of signal sources producing a Dolby Digital or DTS encoded bitstream. The Dynamic Range Control has no effect with PCM and Analog input signals.

For the majority of applications the NORMAL setting should be used. If you wish to turn off all of the software's built-in dynamic range management functions (no compression and thus maximum

dynamic range) the switch can be set to the "MAX".

NOTE: Caution should be exercised when choosing this option. Many smaller loudspeaker systems cannot handle the extremely wide range signals produced in this mode. Overall system volume should be initially set quite low until you or your dealer are able to determine the maximum safe setting to avoid damage to your loudspeaker systems or power amplifiers.

5: ALPHA-NUMERIC DISPLAY

Contains the two line, black on green 16 character per line alphanumeric display which indicates the status and functional mode of the SP2. This screen is also used during the menu-setup function for calibration of the SP2 to your system. If connected to the Bryston Video Switcher, the menu-setup and status display will also be available on your video monitor with On-Screen Display (OSD).

On the first line, the decoding type [Dolby Digital, DTS, Pro-Logic, Music, etc.] is displayed.



On the second line the type of signal being detected from the currently selected input is displayed. A sample screen is shown below:

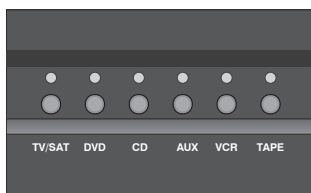


6: MENU CONTROL BUTTONS



These three buttons labeled “◀”, “▶”, and “SEL” (SELECT) are used to control the menu and setup functions displayed on the LCD. To enter a menu mode, you can press any one of these buttons. This will bring up the main menu. Navigating any menu or sub-menu is done using the two arrow (◀ and ▶) buttons. Once the desired submenu or function is highlighted, pressing “SELECT” will make it the current menu or function. To exit a menu, or back up a step use the arrow buttons to highlight the ‘X’ displayed in the lower right hand corner of the LCD window and press “SELECT”, or wait 3 to 4 seconds for the menu to time out and return to its previous state.

7: SOURCE SELECT BUTTONS & INDICATORS



Pressing any one of these buttons will instantly switch the SP2’s analog and digital inputs to read the indicated source.

If the SP2 is in its digital mode, as soon as any input is selected and switched, the decoder will automatically try to determine the new bitstream’s type and mode.

8: DIGITAL MODE SELECT BUTTON & INDICATOR



This button operates as a three-way toggle function. The LED immediately above the button has two colors - RED and GREEN, and an OFF mode where it is not illuminated.

When Digital Mode is selected, the decoder will automatically default to a digital signal for the selected input if one is present.

If a digital signal is present and detected, the SP2 will automatically determine the type of bitstream and select the proper decoding mode. The indicator LED will turn green when this happens.

If NO DIGITAL SIGNAL is detected the SP2 will default back to the analog input for the selected source. This also automatically puts the SP2 into its Digital Standby Mode. When this occurs the LED indicator will turn RED

In this mode, the decoder will continually check the selected source inputs for the presence of a digital signal. If one is detected, the SP2 will automatically switch over to the pre-selected digital

operation mode for that source.

To defeat this auto-digital detect mode you must press the button again. If you do the LED will go OFF.

When this mode of operation is selected the SP2 will look at ONLY its analog inputs. If a digital signal does appear the SP2 will NOT recognize it and will remain in its analog only mode until you press the Digital button again to either select the digital source or place the SP2 into its auto detect mode as explained above.

9: SURROUND MODE BUTTON & INDICATOR



Pressing this button will engage the SP2’s surround listening mode. When this function is operational the LED will turn green. For Dolby Digital and DTS bitstreams, the signal will be decoded and presented with no additional post-processing. For 2-channel source material, the SP2 will synthesize surround information based on the chosen Surround Mode (see *Appendix A: SP2 Surround Modes* for more information).

10: STEREO & STEREO DOWNMIX MODE



If this button is selected and the supplied bitstream is more than 2 channels, the decoder will automatically implement a stereo downmix. Otherwise, analog or digital two channel signals are passed as conventional stereo.

11: MONO & MONO DOWNMIX MODE



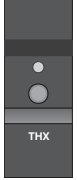
If this button is selected and the supplied bitstream is more than 1 channel, the SP2 software will create a Mono mix of all signals. If the centre channel is present, the Mono signal will appear in the centre channel. If no centre channel is present, the mono signal will appear simultaneously on the Left/Right speakers.

NOTE: *Downmix [stereo or mono] is a software based automatic mixing function available within the SP2. This process exists because whenever the number of active decoder outputs or loudspeakers selected in setup is less than the number of channels in the Dolby Digital program, some channel combining will be necessary to present the program on the available number of channels/loudspeakers.*

As a part of any program’s production, its producers can set and adjust the type and ratios allowed for downmixing somewhat to ensure optimum results without compromising the full Multichannel balance. This is accomplished by including specific data within the Dolby Digital bitstream which rep-

resents different mixing coefficients for the centre and surround channel signals. These will be detected by the SP2 and used to produce the downmix if this mode is selected.

12: "THX" BUTTON



This button allows selection of THX post processing modes. The default mode, which is normally *Surround-EX*, can be selected using the "EX Control" menu. See Appendix B for more Information about THX post processing

THX listening modes:

- Cinema:** re-equalization, timbre matching & adaptive decorrelation. (only available with speaker systems of 6.1 or less)
- Surround EX:** re-equalization, timbre matching & surround EX (Only available with 6.1 or 7.1 speaker systems, automatically engaged if input bitstream is a *Surround-EX* encoded bitstream)
- Advanced Cinema:** re-equalization, timbre matching & adaptive decorrelation, Advanced Speaker Array (Only available with 7.1 speaker systems)
- Music:** timbre matching & adaptive decorrelation (for use with Music source material with speaker systems of 6.1 or less)
- Advanced Music:** timbre matching, adaptive decorrelation & Advanced Speaker Array (For use with Music source material with 7.1 speaker systems)
- Games** Timbre matching & advanced Speaker Array (for use with 2.0 and 5.1 Video Game material. Only available with 7,1 speaker systems)

NOTES:

- 1) *Timbre matching* is used across all THX listening modes.
- 2) *Re-equalization* is applied for both *THX Cinema* & *THX Advanced Cinema* listening modes
- 3) *Advanced Speaker Array* is applied for both THX advanced Cinema & THX Advanced Music listening modes

13: MODE BUTTON:



This button is used to select one of 13 effects for synthesizing surround sound with 2 channel source material. Pressing the button repeatedly will scroll through the modes:

Available with **Surround** Listening Mode:

- PLII Film
- PLII Music
- Pro Logic
- NEO:6 Cinema
- NEO:6 Music
- Hall
- Stadium
- Club
- Party
- Theatre

- Stereo5
- Church
- Natural

You can select a Surround Mode for the Surround or THX listening modes at any time, even if the effect is not immediately active (such as the case when a 5.1 channel bitstream is present). Two Surround Mode settings are memorized for each input – one associated with the Surround listening mode, and one associated with the THX listening mode.

14: BYPASS BUTTON



This button operates as a three way toggle function. The LED immediately above the button has two colors - RED and GREEN, and an OFF mode where it is not illuminated. The options are Bypass 2ch, Bypass 5.1ch, and Bypass Off.

Press the button once, and the unit goes in the Bypass 2ch mode. In this mode, the LED will be GREEN. In Bypass 2ch mode all of the DSP circuitry, DA and AD converters are bypassed, allowing a completely analog circuit path, identical to the reference standard Bryston BP26 pre-amplifier. Only standard format Stereo operation is permitted in this mode - all other functions are disabled. The Front Panel Stereo Balance control now becomes active.

Press the button again, and the unit goes into Bypass 5.1ch mode. In this mode, the LED will be ORANGE. In Bypass 5.1ch mode, the signal from the 5.1 channel analog inputs (RCA) will be routed through the volume controls and to their respective outputs, balanced and unbalanced. No bass management is available with the 5.1ch bypass mode.

To defeat the Bypass mode, press the Bypass button again, and the LED will go OFF.

15: ANALOG BALANCE CONTROL

This control governs the balance of the analog bypass circuit. It will only function if the SP2 is in Bypass 2ch mode.

16: MASTER VOLUME CONTROL

This is the Large Knob located on the far right side of the front panel. It controls the Master Volume in all modes. It is fully motorized and can be operated from the remote control or by hand. It is the final level setting control on the SP2, and determines what output level will be supplied to the connected power amplifiers, but not the tape/recording outputs. It takes into account any speaker level trim adjustments made during the SP2's setup.

REAR PANEL INPUT & OUTPUT CONNECTIONS

1: BALANCED OUTPUTS

2: UNBALANCED OUTPUTS

The SP2 offers both balanced (5.1) and unbalanced (7.1) outputs for power amplifiers or powered loudspeaker systems. The type you select to use will be determined by the input configuration of your amplifiers or self-powered loudspeakers.

NOTE: XLR and RCA connectors can be simultaneously utilized. (Example - Surround fill channels) Back channel(s) are only available from the RCA outputs.

3: ANALOG INPUTS

A paired stereo analog input with gold RCA jacks (labeled L and R, for Left and Right) is provided for each source button on the front panel. The sensitivity of these Inputs is set to the industry standard of 2 Vrms, which should accommodate the vast majority of available source components. In Bypass mode, the input sensitivity is equivalent to the BP26 preamplifier.

A 5.1 channel analog input is also provided on 6 RCA connectors. This is typically used for Multi-channel DVD-Audio, SACD, or external processors. In Bypass 5.1ch mode, the signal from the 5.1 channel analog inputs (RCA) will be routed through the volume controls and to their respective outputs, balanced and unbalanced. No bass management is available with the 5.1ch bypass mode.

4: DIGITAL AUDIO COAXIAL INPUTS

The TV/SAT, DVD, CD, and AUX front panel selectable sources are also supplied with a standard SPDIF gold RCA jack digital audio input. These four inputs will accept any standard SPDIF source including DAT, CDR and similar components.

5: TOSLINK DIGITAL AUDIO OPTICAL INPUTS

The SP2 offers two assignable TOSLINK optical inputs. These can be designated to any input using the OS menu ("Other Settings") on the LCD screen. Please note that if you choose to assign an optical input to an input with a coaxial input, the coaxial will be over-ridden and the optical input signal will be used by the SP2.



The pro model replaces the two TOSLINK connectors with a single AES/EBU Digital connector.

Setting the Optical Audio Input Assignment

1. Enter the main menu by pressing on one of the menu buttons on the SP2 front panel. Move the cursor to "OS". Hit 'Select' - You

are now in the 'Other Settings' (Optical/THX) Menu.

2. Move the cursor to the Optical Input (OPT1 or OPT2) you want to change the input assignment for. Hit 'Select'. (see figure below)



3. Now you can assign the optical input to any one of the 6 inputs selectors. Doing this will override the digital coax connector on that input. Hit 'Select' when finished.

NOTE: On the pro model, 'AES' will show up in the 'Other Settings' Menu (instead of OPT1 and OPT2), to setup the AES/EBU input assignment.

6: TAPE/RECORDING OUTPUTS

The SP2 provides two analog outputs for the TAPE and VCR sources. The front panel selected input signal is always routed to these tape outputs, except when TAPE or VCR is selected. In those cases the appropriate output is automatically muted to prevent feedback.

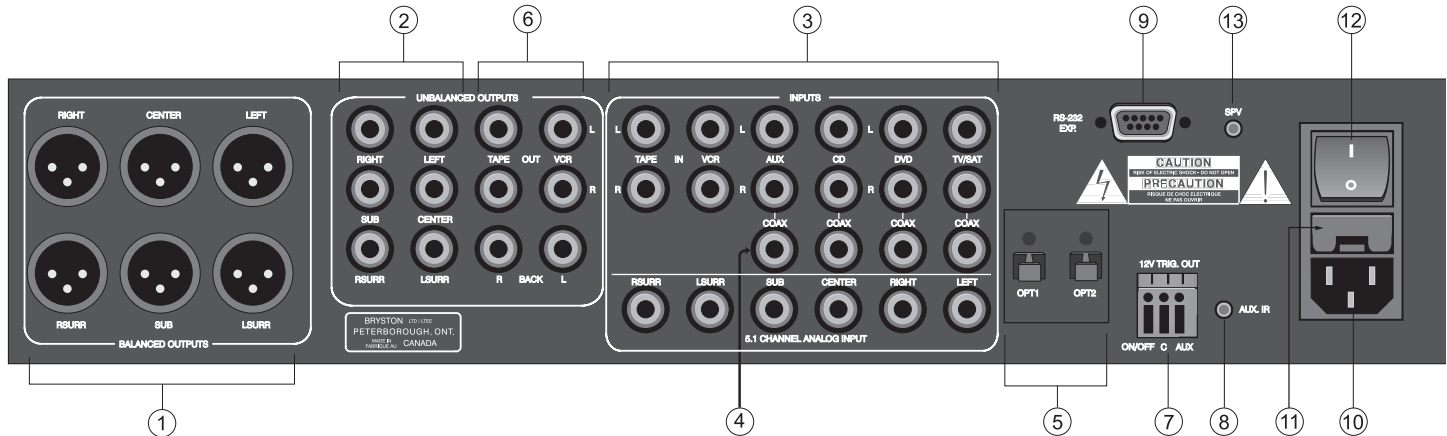
7: REMOTE 12V TRIGGER OUTPUTS

Two trigger outputs are provided. The output labeled "ON/OFF" provides a 12V voltage level whenever the unit is fully powered up. When the unit goes into standby, the level is 0 Volts. The output labeled "AUX" is programmable from the LCD menu as described below. This means that the terminal supplies the 12 Volt signal only when you switch to certain, specified inputs. The Centre (Common or Ground) terminal is always used with the "ON/OFF" or "AUX" terminals to complete the circuit loop. The 12 Volt connector will accept 1/4 - inch stripped wire ends, inserted into the square holes provided, and the adjacent screws carefully tightened to hold them in place. These can be used to control any Bryston Power amplifier and many other components such as motorized screens and drapes. Be sure to determine what type of trigger signal the selected components requires and what function will be enabled by the trigger signal's voltage.

Programming the AUX Trigger Output

1. Enter the main menu by pressing on one of the menu buttons on the SP2 front panel. Move the cursor to "OS". Hit 'Select' - You are now in the Other Settings (Optical/THX) Menu.
2. Move the cursor to "T". (T = Trigger) Hit 'Select'. Now you can assign the AUX Trigger output to ON or OFF, for each of the 6 input sources.

REAR PANEL INPUT & OUTPUT CONNECTIONS



- 1: BALANCED OUTPUTS
- 2: UNBALANCED INPUTS
- 3: ANALOG INPUTS
- 4: DIGITAL AUDIO COAXIAL INPUTS
- 5: *TOSLINK* DIGITAL AUDIO OPTICAL INPUTS
- 6: TAPE/RECORDING OUTPUTS
- 7: REMOTE 12V TRIGGER OUTPUTS
- 8: AUXILLIARY INFRA-RED RECEIVER
- 9: RS-232 SERIAL DATA CONNECTOR
- 10: IEC POWER CONNECTOR
- 11: FUSES
- 12: MASTER POWER SWITCH
- 13: SPV VIDEO SWITCHER SERIAL DATA PORT



3. To change the source, use the "<" button. To toggle the trigger setting On or Off, use the ">" button. Hit 'Select' to exit when finished.

8: AUX IR RECEIVER

The Aux IR Input is a miniature mono phone jack connector. This is used to connect externally mounted IR LED receivers, or other extenders that provide modulated IR receiver data. Data is retransmitted by an IR LED mounted near the front panel IR receiver.

9: RS-232 CONNECTOR

This connection provides for control of remote control of the SP2 functions via a computer interface or AMX/Crestron type controller. Please contact your dealer or Bryston to make use of this optional feature and determine which devices are compatible.

10: IEC POWER INLET

11: FUSES

Please note that the Analog and Digital power supplies are fused separately. Replace fuses **ONLY** with an exact equivalent to avoid damage to the SP2.

12: MASTER POWER SWITCH

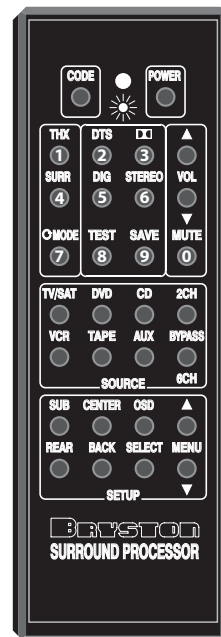
This switch physically interrupts all power to the

SP2. It is normally left in the ON or "1" position. Use the front panel power switch (see pages 3 & 4) to take the unit in and out of standby. See also "POWER INLET & SWITCH" and "1: POWER" on page 3.

13: VIDEO SWITCHER DATA PORT

A 1/8" phone jack serial data port for connecting to Bryston's SPV-1 video switcher.

THE SP2 REMOTE CONTROL



The SP2 Remote Control can operate all front panel operations, with the addition of several functions. By pressing the CODE button, the remote is also capable of sending up to 255 discrete or hidden codes, for teaching universal remotes and other IR based control systems. Some buttons double as number buttons for sending discrete/hidden codes. They are:

- | | |
|----------|-----------|
| 1: THX | 6: STEREO |
| 2: DTS | 7: MODE |
| 3: DOLBY | 8: TEST |
| 4: SURR | 9: SAVE |
| 5: DIG | 0: MUTE |

SP2 Remote Control continued...

1: SOURCE SELECT BUTTONS

These buttons are used to select the desired source. TV/SAT, DVD, CD, AUX, VCR, and TAPE function exactly like their corresponding buttons on the SP2 front panel.

2: BYPASS BUTTONS

To use the 5.1 channel analog input, press the 6CH BYPASS button. To go back to the previous selected source, press the 6CH BYPASS button again. To use the Stereo Bypass mode for the currently selected source, press the 2CH BYPASS button. To go back to the previous selected mode, press the 2CH BYPASS button again.

3: MODE SELECT BUTTONS

These buttons (THX, SURR, DIG, STEREO, MODE) are used to change the SP2 decoding mode, and function exactly like their equivalent buttons on the front panel.

4: MUTE BUTTON

Pressing this button will fully mute the output of the SP2.

5: VOLUME/TRIM BUTTONS

These buttons increase and decrease the master volume. When the SP2 is in its Test/Noise mode, these buttons are used to adjust the level trim for each individual speaker.

6: TEST BUTTON

If pressed for more than 3 seconds, the SP2 will enter the Test/Noise mode. Please see Page 18 for more details on this mode.

7: POWER BUTTON

Pressing this button will toggle the SP2 in and out of the Standby power mode.

Installers: please contact Bryston technical support for information about Discrete On/Off control.

8: SAVE BUTTON

Pressing this button will memorize settings for the current input, as described in "Saved Settings per Source" on page 19.

9: DTS BUTTON

Pressing this button toggles between the DTS Music mode, and the DTS Movie mode. These modes are used ONLY when a DTS bitstream is detected. The DTS Music mode is optimized to provide proper playback of DTS encoded musical material from DVD, LD or CD sources. DTS Movie

is available for playback of DTS encoded motion picture soundtracks from DVD or LD sources. Each mode has an optimized bass management setting in accordance with the DTS program material.







10: DOLBY BUTTON

Pressing this button will engage the Dolby PLII Film mode for any 2 channel sources (PCM, Dolby Digital, or Analog).

11: SETUP BUTTONS

These include SUB, CENTER, OSD, REAR, BACK, SELECT and MENU/UP/DOWN.

All of these setup functions can be accessed while listening to movies or music.

SELECT,  and  buttons function like their corresponding buttons on the SP2 front panel (= and =). To enter the menu mode, press any one of these buttons. If OSD is ON, you will see the menu on your video monitor.

OSD (On-Screen Display) Button will toggle the OSD function on and off, on your video monitor, if you are using the Bryston video switcher.

SUB button will engage the menu for the volume trim level of the subwoofer channel. Use the MENU/UP/DOWN button to change the subwoofer channel level up or down. Press SELECT when finished.

CENTER button will engage the menu for the volume trim level of the center channel. Use the MENU/UP/DOWN button to change the center channel level up or down. Press SELECT when finished.

REAR button will engage the menu for the volume trim level of the rear channels. Use the MENU/UP/DOWN button to change the rear channel levels up or down. Press SELECT when finished.

BACK button will engage the menu for the volume trim level of the back channels. Use the MENU/UP/DOWN button to change the back channel level(s) up or down. Press SELECT when finished.

12: STATUS LED

Indicates remote control status while accessing discrete/hidden functions, and changing remote options. Contact the factory for details.

13: PHOTO SENSOR

Works in conjunction with the backlight and tilt switch to determine if backlighting is needed.

To enable or disable the backlight in the remote control, follow this procedure:

1. Press CODE button for 5 seconds
2. LED will flash red, then release button
3. Type in 3 digit code 792 = MODE/SAVE/DTS
4. LED will flash again to confirm

To send discrete/hidden Code...

1. Press CODE button and release
2. LED will illuminate (Red)
3. Type in 3 digit code (a combination of mode buttons)
4. LED will flash again to confirm and go out.

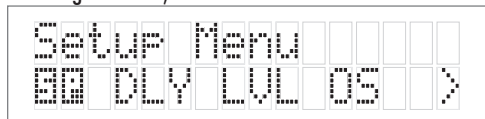
For other hidden codes, visit the Bryston website at www.bryston.ca

SETUP & CALIBRATION OF THE SP2

NOTE: In most operating menu modes the last segment of line 2 of the display will either show an "X" for EXIT, or an ">" (arrow) to indicate more menu items.

Choosing (highlighting) the "X" position in the display and pressing the Select button will "EXIT" back to the previous menu, or exit the menu mode entirely. If an ">" appears, continue pressing the menu navigation arrow buttons to reveal more menu options.

In the figure below, the arrow ">" indicates more menu items:



Highlight "X" to exit



In order to fully enjoy the capabilities of the SP2 you or your dealer must first set-up and calibrate the SP2. This is a critical step in insuring that all your loudspeakers are properly designated within the unit and that all levels and delays are properly set.

To accomplish this process the following tools are needed:

- 1: **Tape measure** or other means of determining the distance of each speaker from the chosen listening positions.
- 2: **Sound Level Meter.** This device insures that all loudspeaker levels are precisely matched and set accurately. This step cannot accurately be done by ear, a test instrument should be used to ensure proper calibration. (The Radio Shack Analog SPL meter is inexpensive and eminently suitable for this task. Your dealer

may have one.)

IMPORTANT: When using the Pink Noise generator within the SP2 for speaker level calibration, the salient point is that all channels measure equal dB. After pushing the test button, the pink noise will start in the front left speaker. Record the dB level from this speaker (with the level trim value at 0 dB on the LCD Display or on the Video Monitor when using the Bryston video switcher), and adjust all the others to match it. It is not critical to reach some specific dB level (ex. 85 dB), it is more important that all channels are at equal levels.

NOTE: If for any reason you are not sure that you can accomplish this calibration task or have any doubts as to how it should be done, please contact your dealer or Bryston technical support **BEFORE** attempting this process. Most Bryston Dealers can provide this service. Please contact your dealer for their policies and procedures in this regard.

EXPLANATION OF 'SAVED SETTINGS PER SOURCE' FEATURE

The SP2 will remember different mode settings for each source. Every time a source is engaged it will recall the following settings:

- Digital Status
- Listening Mode (Surround, THX, Stereo, Mono)
- Surround Mode
- Bypass Status
- SubWoofer level
- Rear Channel Levels
- Back Channel Levels
- Speaker Configuration
- EX Control
- ES Control

To save these settings, make the preferable mode changes and adjustments **per source**, then press the SAVE button on the SP2 remote control before switching to another input.

NOTE 1: You must set the speaker configuration manually for each input, within the LCD setup menu.

NOTE 2: The Setup Test Noise mode will overwrite Rear and Sub level settings for ALL inputs.

SETTING THE SPEAKER CONFIGURATION

Before calibrating levels you must first tell the SP2 about your loudspeaker configuration. To do this:

- 1: First enter the main menu by pressing on any one of the menu buttons (< - > or SELECT).



- 2: Next move the cursor to "SP". Hit 'SELECT' - You are now in the Speaker Menu.



- 3: Move the cursor to the speaker(s) you want to change the configuration for using the arrow keys (LR, C, SUR, BK, SUB). Hit 'SELECT'.

The options available in this menu are:

- For LEFT/RIGHT (LR): SMALL or LARGE
- For CENTRE (C): SMALL, LARGE or NONE
- For SURROUNDS (SUR): SMALL, LARGE or NONE
- For BACK (BK): NONE, Small-1, Small-2, Large-1, Large-2,
- For SUBWOOFER (SUB): None, Yes, Yes-Ultra2

The SP2's default factory settings as shipped are:

- Left/Right = SMALL
- Centre = SMALL
- Surrounds = SMALL
- Back = NONE
- Subwoofer = YES

If only one back speaker is chosen, the signal will be present on the BACK LEFT (RCA jack) OUTPUT only.

- 4: Once you have completed selecting the settings that match your particular speaker systems please move the cursor to the (X) and press SELECT to exit this menu. When using the remote control to enter these selections, press the "SAVE" button before exiting or settings will be lost.

LARGE VS SMALL SPEAKER SETTINGS:

It is very important that you understand what is meant by the LARGE and SMALL settings in this menu. They do not refer to SIZE, but to the ability of the particular loudspeaker system to handle low bass/low frequency information. It is very important that you consult your loudspeaker providers instruction manual or the company regarding the capabilities of your particular system with regard to low bass/low frequency reproduction. Please note that all THX certified loudspeaker systems are SMALL since a subwoofer is a part of any THX certified loudspeaker system. It is strongly recommended that you consider using a subwoofer for

any system which you expect to effectively handle the low frequency dynamics of modern motion picture soundtrack sources such as DVD or HDTV feeds, and many other discrete multi-channel programming sources. If in any doubt choose small, especially if you are using a subwoofer, since this will insure that all the appropriate low frequency information is directed to the subwoofer where it can be most effectively handled.

EXPLANATION OF 'XTRA BASS' MODE

With any 2-channel material, there is no LFE (Low Frequency Effects, .1 channel) track. So, if your front speakers are defined as 'Large', the subwoofer will be inactive because no bass is being directed there. The Xbass mode allows the subwoofer to be active, even if the front speakers are full-range. You may find this is particularly useful for Pro Logic movie soundtracks.

In the Speaker Setup Menu, under the SUB heading, there are 3 choices:

- 1: None: no subwoofer attached to the system.
- 2: Yes - Xbass Off: subwoofer is active, but only active with LFE tracks if the front speakers are full-range
- 3: Yes - Xbass On: subwoofer is active in system, in addition to full-range speakers.

NOTE 1: the Xbass settings only show up in the menu if the front speakers are defined as 'Large'. Otherwise, there are only two options, Yes and None.

NOTE 2: Xtra Bass operation is only available with Stereo, Stereo5, Party, Pro Logic, PLII Music, and PLII Movie modes.

SETTING THE SPEAKER CROSSOVER FREQUENCY

- 1: First enter the main menu by pressing on any one of the menu buttons (< , > or SELECT).



- 2: Next move the cursor to 'SP'. Hit 'SELECT'. You are now in the Speaker Menu.



- 3: Next move the cursor to 'XO'. Hit 'SELECT' - You are now in the Crossover Menu. The options available in this menu are either NONE or 40 to 200 Hz in 10 Hz increments. The SP2's default factory setting as shipped is the THX standard 80 Hz crossover frequency.



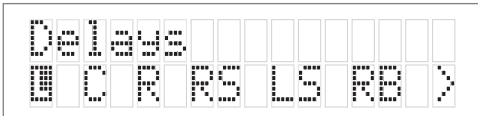
- 4: Once you have selected the desired crossover frequency, press SELECT to exit this menu and return to the Speaker Config menu. The selected frequencies are common to all speakers defined as 'SMALL'. Crossover frequency can be set independently for Front, Centre, Surround and Back speakers.

NOTE 1: *The crossover action is only applied to speakers defined as 'SMALL' in the speaker configuration menu.*

SETTING THE CHANNEL DELAYS

In this step you will need to measure within one foot the distances from your chosen listening/viewing position to the various loudspeaker locations in your system. You will need the tape measure or other means of making these measurements. You should record this data for future reference.

- 1: Now, make a measurement from the chosen seated position to each loudspeaker.
- 2: Next, enter the main menu by pressing on one of the menu buttons on the SP2 front panel. Move the cursor to "DLY". Hit 'Select' - You are now in the Delay Menu. The SP2 automatically calculates the required delay time per speaker using the data entered as distance from the listening position. Delays are implemented using DSP RAM and have a maximum value.



IMPORTANT: It is recommended that the closest speaker is entered first. The SP2 will calculate the maximum allowable distance from the listening position for the remaining speakers. Please note that delay is represented in feet. For reference, One foot (0.3048 meters) = approximately 1 millisecond of delay.

- 1: Move the cursor to the speaker you want to set the distance/delay for (L C R RS LS RB LB SB). Hit Select. Now you can adjust the Delay value which is equivalent to the distance you measured for the selected speaker using the arrow buttons. Set the delay for each speaker in your system to the nearest foot/meter. Rounding up is OK. Remember that if one back speaker is selected, the Left Back output is used to set the delay.
- 2: Hit SELECT or [X] Exit when finished. The SP2's default factory settings as shipped are 10 feet to every speaker, resulting in zero

overall delay. When using the remote control to enter these selections, press the "SAVE" button before exiting or settings will be lost.

CALIBRATING AND SETTING LEVELS/CHANNEL TO CHANNEL BALANCE.

- 1: Position the Sound Level Meter at the Centre point of your listening area, at average ear height [approximately 40 - 46 inches {102 - 117 cm.} with its microphone positioned vertically (pointing at the ceiling). DO NOT aim the sensing microphone at the speakers, as this will produce inaccurate level indications.
- 2: Using the SP2 Remote, press and hold for approximately 3-5 seconds the key labeled "TEST".

IMPORTANT: The Test-Noise Mode can only be initiated from the SP2 remote, and not from the front panel.

The shaped pink-noise test signal will begin with the left-front loudspeaker. If the signal does not appear in this speaker please stop the process and check your wiring and connections for proper configuration.

IMPORTANT: When using the Pink Noise generator within the SP2 for speaker level calibration, the salient point is that all channels measure equal dB. After pushing the test button, the pink noise will start in the front left speaker. Record the dB level from this speaker (with the level trim value at 0 dB on the LCD Display), and adjust all the others to match it. It is not critical to reach some specific dB level (ex. 85 dB), it is more important that all channels are at equal levels.

- 1: Hit the "TEST" button again to sequence the noise to the next speaker. The sequence is L -> C -> R -> RS -> RB -> LB -> LS -> SUB -> EXIT.
- 2: Using the volume up/down arrows on the remote or the arrow keys on the SP2 adjust the level of the noise for each speaker so that it matches the front left channel noise (dB) level on the Sound Level Meter.
- 3: When the cycle is complete, the test noise signal will end, and the unit will switch back to the previous mode. If any output is unused (as defined by 'NONE' in the Speaker Configuration Setup), the noise sequence will automatically skip to the next speaker in the sequence.

SETTING CHANNEL LEVELS WITHOUT PINK NOISE

If you wish to adjust the speaker level trims without using the pink-noise test signal, this can be done from the Front Panel menu system.

- 1: First enter the main menu by pressing on any one of the menu buttons on the SP2 front panel (< - > or SELECT).

- 2: Next move the cursor to "LVL". Hit 'SELECT' - You are now in the Level Trim Menu.
- 3: Move the cursor to the speaker(s) you want to change the level for using the arrow keys (L, C, R, RS, LS, RB, LB, SUB). Hit 'SELECT'. Now you can adjust the Level for the selected speaker using the arrow buttons.
- 4: Hit 'SELECT' when finished, and repeat Step 3 to change the Level Trim for any of the other speakers.

SETTING THE THX SUBWOOFER LIMITER OR "BASS PEAK LEVEL MANAGER"

To diminish the chance that your subwoofer will overload from the large amount of bass, often present in the LFE channel the system uses a Peak Management circuit which works with the data you supplied during speaker setup to help match the subwoofer output to your specific subwoofer's capabilities. Please note that the factory default for the BLPM is -10 dB since the capabilities of your specific subwoofer are unknown. In the SP2 setup and calibration section above, the final step you should have performed was to set the BLPM for your sub-woofer's specific capabilities.

SETTING THE BPLM WITH PINK NOISE

- 1: Enter the main menu by pressing on one of the menu buttons. Move the cursor to "OS". Hit 'Select' - You are now in the Other Settings (Optical/THX) Menu.

```
Other Settings
0000 OP1 OP2 T >
```

- 2: Move the cursor to 'BPLM'. Hit Select. [BPLM=Bass Peak level Manager] You will see the following screen.

```
Do BPLM Routine?
000000000000 YES
```

- 3: Hit 'SELECT' and you will see the adjustment screen picture below appear, and you will hear a low level Pink Noise signal coming from your subwoofer and/or large speakers.

```
Hit SEL at OVRD
Increase Level->
```

Now you can adjust the value of the subwoofer limiter (-24 to 0 dB). Slowly increase the level by pressing the ">" button (display counting up from -24) until you hear overload/ distortion/bottoming/ popping from your sub-woofer(s). When you do, reduce the value shown by 1dB and Hit 'SELECT' to save the setting. You can always return to this

menu to make further adjustments if needed.

SETTING THE BPLM WITHOUT PINK NOISE

To adjust the BPLM setting without running the Noise routine, Enter the BPLM as above, but when the SP2 prompts "Do BPLM Routine?", use the arrow keys to select 'NO' and hit 'SELECT'. This will bring up the numeric value of the BPLM setting without the noise signal. You can now adjust the value using the arrow keys, and hit 'SELECT' when finished.

Caution: If the BPLM is set to "OFF" or "0", the Bass Limiting function is disabled. In this case, you may run the risk of speaker damage due to bass overload. Please be sure that your speaker system can handle high bass levels before disabling the BPLM.

ENABLING DTS-ES 6.1 DECODING

DTS-ES Discrete 6.1 will only operate on DTS source bitstreams that have a discrete sixth channel encoded. If the Back Speakers are turned on via the speaker config menu (See Speaker config on page 19.) and the input bitstream permits, DTS-ES Discrete 6.1 will be detected and enabled automatically.

DTS-ES Matrix 6.1 processing creates back channel material from material contained in the surround channels of DTS 5.1 bitstreams. Some DTS material has been formatted so that when DTS-ES Matrix 6.1 processing is applied, specific material will be placed on the back channels, while other specific material remains on the surround channels. To control when DTS-ES Matrix 6.1 processing will be applied, change the ES Control setting as follows:

- 1: First enter the main menu by pressing on any one of the menu buttons (< - > or SELECT)

```
Setup Menu
SP DLY LVL DE >
```

- 2: Next move the cursor to "OS". Hit 'SELECT'; You are now in the 'Other Settings' menu.

```
Other Settings
< OP2 T EX DE X
```

- 3: Move the cursor to "ES". Hit 'SELECT'; you can now change the ES Control setting.

```
ES Control
0000000000 AUTO
```

The options available in this menu are:

- **DISABLE:** DTS-ES will not be decoded

- **ON:** DTS-ES Matrix will be forced on for all DTS 5.1 channel input bitstreams, if the back channels are enabled.
- **AUTO:** DTS-ES Matrix will be decode if the incoming DTS bitstream is flagged as having DTS-ES encoded content, and if the back channels are enabled.

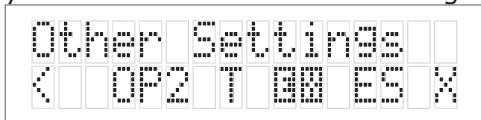
ENABLING THX SURROUND EX™ DECODING

THX Surround EX™ processing creates back channel material from material contained in the surround channels of Dolby Digital 5.1 bitstreams. Some Dolby Digital material has been formatted so that THX Surround EX™ processing is applied, specific material will be placed on the back channels, while other specific material remains on the surround channels. To control when THX Surround EX™ processing will be applied, change the EX Control setting as follows:

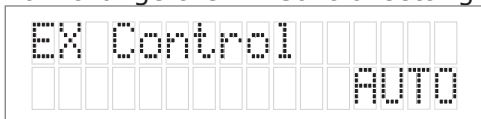
- 1: First enter the main menu by pressing on any one of the menu buttons (< - > or SELECT)



- 2: Next move the cursor to "OS". Hit 'SELECT'; you are now in the 'Other Settings' menu.



- 3: Move the cursor to "EX". Hit 'SELECT'; you can now change the EX Control setting.



The options available in this menu are:

- **DISABLE:** THX Surround EX™ will not be decoded
- **ON:** THX Surround EX™ will be forced on for all Dolby Digital 5.1 channel input bitstreams, if the back channels are enabled.
- **AUTO:** THX Surround EX™ will be decoded if the incoming Dolby Digital bitstream is flagged as having THX Surround EX™ encoded content, and if the back channels are enabled.

For more information on THX Surround EX™, visit www.thx.com

CHANGING DOLBY PLII MUSIC SETTINGS

Dolby Pro Logic II is the next generation in Dolby Surround decoding. It is designed specifically to decode all existing Dolby Surround programs and provide improved spatiality and directionality of sounds. Through the use of an elegant new approach to matrix surround decoding and the decoding of stereo, full-bandwidth surround outputs, Pro Logic II decoding effectively bridges the gap between Pro Logic and discrete Dolby Digital 5.1 soundtracks.

Pro Logic II is also designed for use with unencoded stereo music recordings. The listener is drawn into a three-dimensional space, rather than hearing a flat, two-dimensional presentation. This not only helps develop a more involving soundfield, but also solves the narrow "sweet spot" problem of conventional stereo reproduction. All of these benefits are provided using the same "3/2" speaker configuration consumers have been using with Pro Logic since 1988.

Pro Logic II follows in the footsteps of Pro Logic and Dolby Digital 5.1 channel decoding. In many key respects, Pro Logic II fits into this environment seamlessly. Electrically, the parameters of headroom, reference level, channel calibration, output trim controls, noise sequencer, and master volume control are all unchanged relative to a Pro Logic decoder within a 5.1 channel Dolby Digital decoder. The main difference is that besides the stereo surround outputs, Pro Logic II provides some new, optional modes to enhance music playback.

PLII Film: This is the preferred decoding method for watching movies with matrix surround encoding. The centre width and dimension variables are set and optimized for this application, and cannot be adjusted. No filters are present on the surround channels, and auto-balance is operational.

PLII Music: This mode can enhance normal stereo music recordings, offering a wider soundstage and enhanced spatial effects. This offers user control over:

- 1: **Center Width Control** allows variable adjustment of the center image so it may be heard only from the center speaker, only from the left/right speakers as a "phantom" center image, or various combinations of all three front speakers. For home users, it allows improved blending of the center and main speakers, or to control the sense of image width, or "weight."
- 2: **Dimension Control** allows the user to gradually adjust the soundfield either towards the front or towards the rear. This can be useful to help achieve a more suitable balance from all the speakers with certain recordings.

- 3: **Panorama Mode** extends the front stereo image to include the surround speakers for an exciting "wrap around" effect with side wall imaging.

PLII Music also applies a mild high-frequency shelf filter to the surround channels for a more natural soundfield. Auto-balance is disabled.

To change the PLII Music settings:

- 1: First enter the main menu by pressing on any one of the menu buttons (< - > or SELECT)

```
Setup Menu
< LVL 05 0000 X
```

- 2: Next move the cursor to "PLII". Hit 'SELECT'; you are now in the 'PLII Music' menu.

```
PLII Music Menu
000 DIM PAN X
```

3:

Move the cursor to the setting you want to change. The options are:

CEN – center width (0 to 7; default 3)

DIM – dimension (-3 to +3; default 0)

PAN – panorama (YES or NO; default NO)

Hit 'SELECT'; you can now change the chosen PLII setting:

```
CENTRE WIDTH
0000000000 3
```

CHANGING DTS NEO:6 SETTINGS

Neo 6 provides up to six full-band channels of matrix decoding from stereo matrix material. Users with 6.1 and 5.1 systems will derive six and five separate channels respectively, corresponding to the standard home-theater speaker layouts. (The ".1" subwoofer channel is generated by bass management in the preamp or receiver.) Neo:6 also offers a music mode to expand stereo non-matrix recordings into the five- or six-channel layout, in a way which does not diminish the subtlety and integrity of the original stereo recording.

"CENTER IMAGE" IS A VARIABLE IN NEO:6 MUSIC MODE ONLY.

Neo:6 derives a center channel from two-channel material. In cinema mode, for Left/Right film soundtracks, sounds steered to the center are subtracted from the left and right channels. In music mode, the intent in the front channels is less one of steering and more one of stabilizing the front image by augmenting it with a center channel, while preserving the original perspective of the stereo mix. Therefore the derived center is never fully

subtracted from the left and right channels.

"Center Image" is the factor controlling the amount of subtraction. It varies between 0 and 0.5 in steps of 0.1 and the default value is 0.2.

When Center Image = 0, the factor is zero and nothing is subtracted from the left and right channels. When Center Image = 0.5, the center channel is subtracted from the left and right channels at half level (-6 dB) for each channel. The signal level sent to the center channel output is not affected by Center Image.

This control should be set based on room layout and personal preferences. A setting of 0 allows the left and right channels to pass through unaltered from the stereo mix. A setting of 0.5 gives more center channel dominance, which is particularly desirable if listeners are located well off-center. At any setting, the center speaker anchors the image.

To change the Center Image:

- 1: First enter the main menu by pressing on any one of the menu buttons (< - > or SELECT)

```
Setup Menu
< 05 PLII 000 X
```

- 2: Next move the cursor to "DTS". Hit 'SELECT'; you are now in the 'DTS Settings' menu.

```
DTS Settings
000 LFE X
```

- 3: Move the cursor to 'CEN' and hit 'SELECT' – you can now change the NEO:6 center image setting. (0 – 0.5)

```
NEO CENTRE IMAGE
0000000000 0.5
```

APPENDIX A

SP2 SURROUND MODES

Pressing the MODE button will illuminate the LED and let you sequentially select one of the many available decoding modes for 2 channel signals. These special modes are designed to expand your enjoyment of almost any 2 channel music source and many other 2 channel signals. You are encouraged to experiment with the options on various sources. Not all will supply something you may like, but there are so many variables that it does pay to take a few moments to listen to the options. The custom SP2 Surround Modes use a set of DSP algorithms to create a set of simulated signals using the original left and right 2 channel data and feeds these to the to centre and surround speak-

ers.

Surround Modes:

HALL: This Sound Field Mode emulates a medium or large concert hall. It provides a longer reverberation time than other modes and gives the effect that music is heard at a greater distance from the performers. It is ideal for orchestral classical music and light orchestral music, such as that found on many film soundtrack albums, but this mode will generally sound a bit muddy on rock or pop music.

THEATRE: This Sound Field Mode simulates a room larger than a club, and it is intended to simulate what you would hear in the front rows in a medium-size theatre. The reverberation here is not overly obtrusive, since a theatre is intended for clarity of speech. This mode is suited for opera, rock, easy listening music, and any music you might hear in a theatre.

STADIUM: This Sound Field Mode provides a prominent "slap echo," emanating largely from the rear, and it gives a lively effect especially on solo instruments such as bass guitar. This mode is unsuitable for speech as the echo destroys intelligibility. The sound is "big" but slightly artificial — it is suitable for stadium rock, and other music that one would hear in a large stadium environment.

CLUB: This Sound Field Mode is intended to simulate being fairly close, around 10 feet away, in a small intimate club setting with a moderate amount of reverberation that does not destroy clarity. The result is a bit colored for speech due to the small room size, but it is quite suitable for jazz groups, cabaret, small-venue rock 'n roll, and a small disco venue where dance music is played. This mode can also be used for classical chamber music and solo instrumental music of most kinds.

CHURCH: This Sound Field Mode simulates a large, spacious acoustic space with a very long reverberation time. It is well-suited to organ music, choral music, and New Age music. It is too reverberant for most other kinds of material, but it is very spacious for material it is suited to.

Natural: This mode enhances the basic stereo reproduction by using the inherent acoustics recorded within the source material. If the source material was surround encoded or recorded in an acoustically oriented manner (such as a lot of classical music and many live recordings) this mode can provide truly spectacular effects and an enhanced sense of the space in which the music

was being performed.

PARTY: The Party (Five-Channel Mono) Mode converts stereo input to a mono signal which is then distributed to the five satellite channels.

Stereo5: The Stereo5 (Five-Channel Stereo) Mode converts stereo input to surround sound. The stereo signal is distributed to the five satellite channels, creating a giant stereo image in your listening space.

(Please note that the apparent effect of the Surround Mode can be adjusted by altering the delay parameters and channel volume of the centre, surrounds and back channel(s), using the appropriate menus).

NOTE: Remember there really are no "correct" settings that will work equally well for all kinds of music. You may need to adjust the parameters and mode depending on the music material.

Acknowledgements

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APPENDIX B:

INFRA-RED REMOTE CODES

Power OFF	000	CLUB	075
TV/SAT	001	THEATRE	076
DVD	002	NATURAL	077
CD	003		
AUX	004	Dynamic Range Scroll . .	090
VCR	005	Chatter Detect ON	091
TAPE	006	Chatter Detect OFF	092
Volume UP	007	Restore DAE5 factory settings ⁷	246
Volume DOWN	008	Update DAE5 factory settings	247
MUTE (toggle) ³	009	Volume Calibration ⁵	248
TEST	010	Turning Point ⁵	249
DIGITAL	011	AUTO SAVE TOGGLE ⁶	250
DOLBY	012	Crossover Enable/Disable ³ . .	251
STEREO	013	Restore factory defaults ⁴	254
THX	014	NULL	255
POWER ON/OFF ³	015		
DTS	016		
SURROUND	017		
MODE	018		
MENU UP	019		
MENU DOWN	020		
SELECT	021		
CENTRE	022		
REAR	023		
BACK	024		
SUB	025		
SAVE	026		
BYPASS 2 CH ON/OFF ³ . .	027		
BYPASS 6 CH ON/OFF ³ . .	028		
Power ON	029		
SPV-1 ¹ Reserved	030		
SPV-1 Reserved	048		
OSD ² On/Off ³	049		
OSD Off	050		
OSD On	051		
MONO	052		
BYPASS 2 Ch ON	053		
BYPASS 6 Ch OFF	054		
BYPASS OFF	055		
DIGITAL ON	056		
DIGITAL OFF	057		
MUTE ON	058		
MUTE OFF	059		
BYPASS SUB TOGGLE ³ . . .	060		
FORCE DIGITAL ON	061		
FORCE DIGITAL OFF	062		

SURROUND MODES

MODE NONE	064
PROLOGIC	065
PLII MUSIC	066
PLII MOVIE	067
NEO6 MUSIC	068
NEO6 MOVIE	069
STEREO 5	070
PARTY	071
HALL	072
CHURCH	073
STADIUM	074

SP2 SPECIFICATIONS

INPUTS

Analog Audio:	Six stereo (RCA) pairs, One 5.1 channel (RCA) input
Digital:	4 coaxial (RCA) 75 Ohms, 2 Optical (TOSLINK?), conforms to SPDIF standard.
	Pro version 1 AES/EBU input (XLR) 110 Ohms
Infrared:	1 mini (1/8") phone jack
RS-232:	D9 connector (bidirectional)

OUTPUTS

Analog Outputs:	Left, Centre, Right, Right Surround, Left Surround, and Subwoofer on 6 unbalanced (RCA) and 6 balanced (XLR). 2 stereo (RCA) pairs of Record Outputs. 1 pair (RCA) Surround Back outputs
Trigger:	One 12V on/off trigger, One 12V programmable trigger, to source 80mA total.
Serial Data:	(for video switcher): 1 mini (1/8") phone jack

INFRA-RED REMOTE CONTROL

Number of buttons	30
Power Source	two AAA batteries

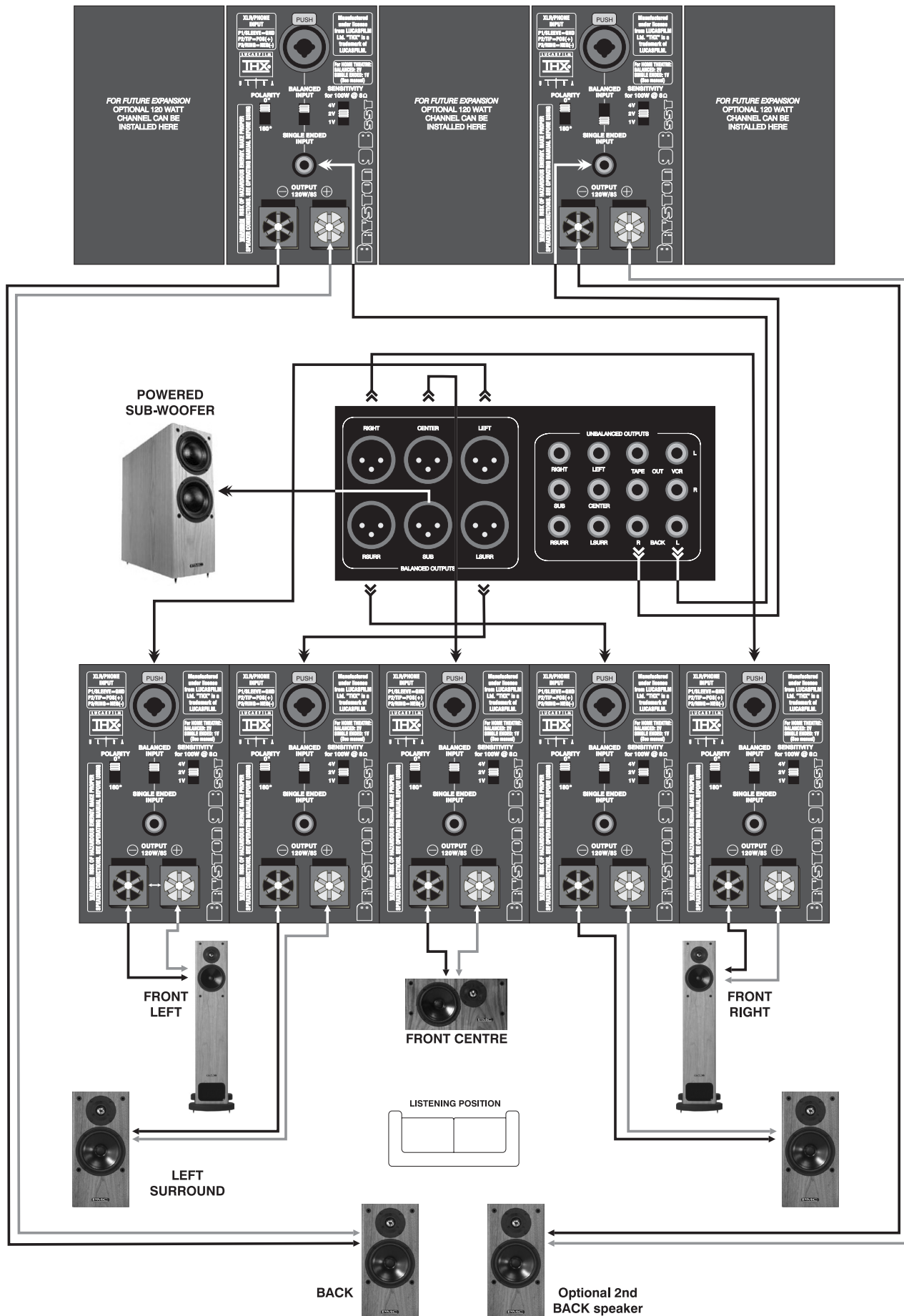
PERFORMANCE SPECIFICATIONS

A/D Conversion:	24-Bit, 48kHz Delta-Sigma
D/A Conversion:	24-Bit, up to 96kHz Delta-Sigma
DSP Engine:	TI Aureus
Power Supply:	Dual, Linear, Toroidal
Frequency Response:	20Hz to 20kHz +/- 0.25 dB
THD+Noise:	Less than 0.006% in DSP modes; Less than 0.0025% in Bypass mode 20Hz to 20kHz at maximum output level.
Signal-to-Noise Ratio:	105dB in DSP Modes; 110dB in 2ch Bypass Mode ; 22kHz bandwidth, Ref. 1kHz at maximum output level
Input Level:	2 Vrms in DSP modes; 4 Vrms in Bypass Mode
Input Impedance:	50kOhms
Output Level:	8 Vrms (16 Vrms Balanced) in DSP Modes; 10 Vrms (20 Vrms Balanced) in Bypass Mode.
Output Impedance:	110 Ohms
Bass Management:	2nd Order HP filter(x5), 4th Order LP filter 40 – 200 Hz Cross-over Freq.

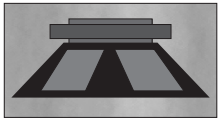
PHYSICAL SPECIFICATIONS

Power Requirements	100VAC, 115VAC, and 230VAC models. 200 VA. IEC detachable power cord (included)
Dimensions:	17" W x 13.5" D x 3.8" H; rackmount 19" W x 13.5" D x 3.5" H
Weight:	approx 22 lbs (10 kg)
Chassis Temp:	50 deg Celsius max.

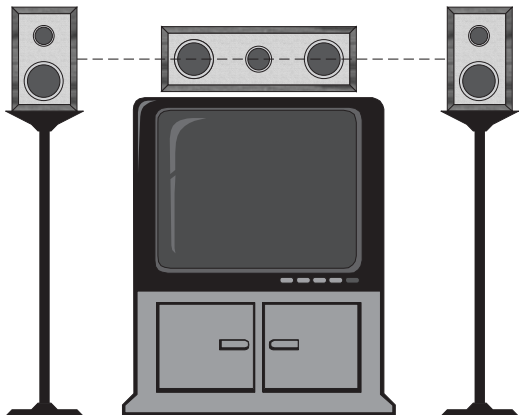
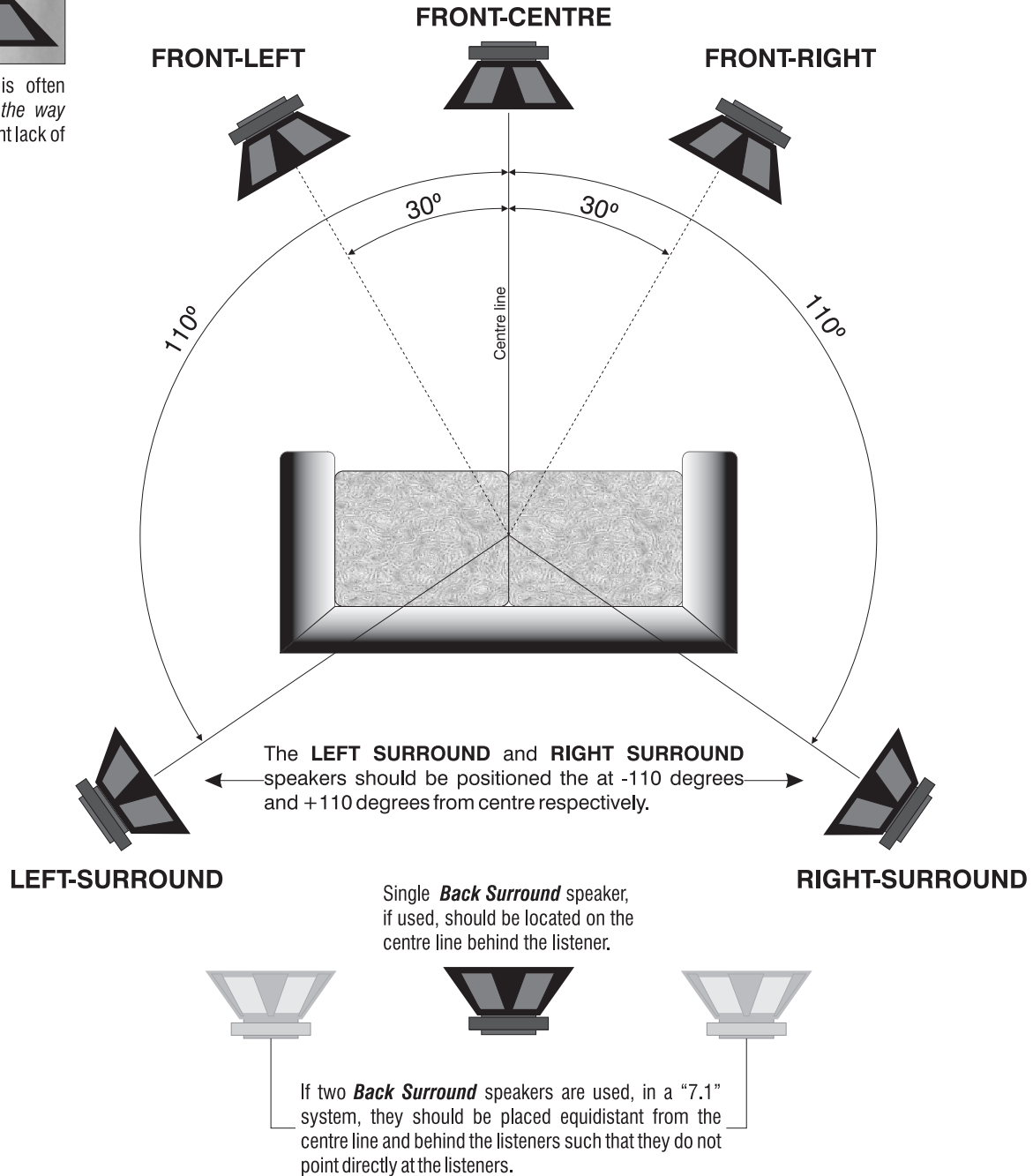
Specifications subject to change without notice.



SUGGESTED SURROUND SPEAKER PLACEMENT



A **sub-woofer** is often located *out of the way* due to its inherent lack of directionality



VERTICAL PLACEMENT OF SPEAKERS

The front speakers are normally placed at ear level, but where the front-centre speaker is placed on top of the television or video monitor the front-left and front-right speakers should be elevated to be in-line with the centre speaker